

We claim:

1. A method for a node to select a gateway from among at least two gateways, comprising the steps of:

5 storing information associating a metric with each gateway with respect to each of one or more destinations;

upon receiving a connection request to a destination, the further steps of:

i) deterministically selecting a first gateway

10 having an optimum metric with respect to the destination,

ii) sending a connection request to the first gateway,

15 iii) if a connection can not be established to the destination via the first gateway, randomly selecting a second gateway from among the gateways other than the first gateway, and

iv) sending a connection request to the second gateway.

20 2. The method of claim 1 wherein the connection request contains zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the
25 connection request, and the step of randomly selecting a second gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

30 3. The method of claim 1 wherein if more than one gateway have the optimum metric with respect to the destination, the step of deterministically selecting a first gateway randomly selects the first gateway from among the gateways having the optimum metric.

35 4. The method of claim 1 wherein the step of randomly selecting a second gateway applies a weighting factor to each

gateway, the weighting factor taking into account the metric of each gateway with respect to the destination.

5. The method of claim 1 wherein the step of randomly selecting a second gateway is further limited to the gateways whose metric with respect to the destination is within a pre-set range.

6. The method of claim 1 wherein the step of randomly selecting a second gateway is repeated if a connection can not be established via the second gateway first selected randomly, and the selection is limited to the gateways through which a connection has not already been attempted.

7. The method of claim 1 wherein the step of deterministically selecting a first gateway is repeated if a connection can not be established via the first gateway first selected deterministically, and the selection is limited to the gateways through which a connection has not already been attempted.

8. The method of claim 3 wherein the connection request contains zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request, and the step of randomly selecting a second gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

9. The method of claim 4 wherein the connection request contains zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request, and the step of randomly selecting a second

gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

10. The method of claim 5 wherein the connection request contains zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request, and the step of randomly selecting a second gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

11. The method of claim 6 wherein the connection request contains zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request, and the step of randomly selecting a second gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

12. The method of claim 7 wherein the connection request contains zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request, and the step of randomly selecting a second gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

13. The method of claim 1 wherein the metric represents an approximation to a cost of reaching the destination with which the metric is associated through the gateway with which the metric is associated.

14. The method of claim 1 wherein the metric represents

an approximation to the delay that would be experienced by a user if the connection route was established to the destination with which the metric is associated through the gateway with which the metric is associated.

5

15. The method of claim 1 wherein the metric represents an approximation to the number of domains through which the connection route would pass in reaching the destination with which the metric is associated through the gateway with which the metric is associated.

10

16. In a communication network containing a plurality of domains, electronic hardware for use in a node in a domain, the electronic hardware containing circuitry for carrying out steps to select a gateway, the domain having at least two gateways, the node having stored information associating a metric with each gateway with respect to each of one or more destinations, and the steps comprising the steps of:

15

deterministically selecting a first gateway having an optimum metric with respect to a destination,

20

sending a connection request to the first gateway,

if a connection can not be established to the destination via the first gateway, randomly selecting a second gateway from among the gateways other than the first gateway, and

25

sending a connection request to the second gateway.

17. The electronic hardware of claim 16 wherein the circuitry selects a gateway upon receiving a connection request, the connection request containing zero or more identifiers identifying domains through which the connection route has already passed, the step of deterministically selecting a first gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request, and the step of randomly selecting a second gateway does not select a gateway leading to a domain indicated by the

30

35

identifiers in the connection request.

18.

A node comprising:

memory for storing information associating a metric

5 with each of one or more gateways with respect to each of one or more destinations reachable through the respective gateways,

means for launching a connection request to a selected gateway,

10 means for selecting the selected gateway which deterministically selects a first gateway having an optimum metric with respect to a destination, and if a connection can not be established to the destination via the first gateway, randomly selects a second gateway from among the gateways other than the first gateway.

15 19. The node of claim 18 wherein the means for selecting the selected gateway selects a first gateway upon receiving a connection request, the connection request containing zero or more identifiers identifying domains through which the connection route has already passed, and the means for
20 selecting the selected gateway does not select a gateway leading to a domain indicated by the identifiers in the connection request.

25

20. A method for making a routing decision in a communication network, comprising the steps of:

deterministically making a first routing decision,
and

30 if a connection can not be established, randomly making a second routing decision.